Claims:

1. A connector arrangement operative to connect a prime mover driven alternator to an alternating current circuit with an existing alternating current, wherein the connector arrangement includes a circuit with an adjustable resonant frequency, adjustable between a first resonant frequency tuned to an initial operating frequency of the prime mover and a second resonant frequency detuned to the initial operating frequency.

2. A connector arrangement according to claim 1, wherein the second resonant frequency is tuned to operation of the prime mover at normal working temperature.

3. A connector arrangement according to claim 2, further comprising one or more capacitors operable to provide the connector arrangement with at least first and second capacitance values, the first capacitance value providing the tuned circuit and the second capacitance value providing the detuned circuit.

4. A connector arrangement according to claim 3, wherein the one or more capacitors include a first capacitor connected in series with the alternator.

5. A connector arrangement according to claim 4, wherein the one or more capacitors include a second capacitor arranged along an electrical path extending in parallel around the first capacitor.

6. A apparatus according to claim 5, wherein the electrical path extending around the first capacitor includes a switch.

7. A connector arrangement according to any of claims 3 to 6, wherein at least one of the one or more capacitors is an adjustable capacitor.

8. A connector arrangement according to any preceding claim, further comprising a switch operable to connect the alternator to the alternating current circuit.

9. A connector arrangement according to any preceding claim, further comprising an impedance switchable into and out of parallel arrangement with the alternator, the impedance being of sufficiently low value that the prime mover cannot drive the alternator to produce a current around the impedance when connected in parallel with the alternator.

10. A connector arrangement according to claim 9, further comprising a controller arranged to connect the impedance into a parallel arrangement with the alternator, arranged to disconnect the alternator from a parallel arrangement with the alternator and arranged to connect the alternator to the alternating current circuit.

11. A connector arrangement according to claim 10, wherein the controller is arranged to disconnect the impedance from a parallel arrangement with the alternator before it connects the alternator to the alternating current circuit.

12. A connector arrangement according to claim 11, wherein the controller is arranged to disconnect the impedance from a parallel arrangement with the alternator after it connects the alternator to the alternating current circuit.

13. A connector arrangement according to any of claims 9 to 12, wherein the alternator is connected to the alternating current circuit through an impedance.

14. A connector arrangement according to claim 13, including means to monitor the characteristics of the current passing through the impedance connected between the alternator and the alternating current circuit.

15. A connector arrangement according to claim 14, further comprising a switchable electrical path and wherein the controller is arranged to complete this switchable path to short circuit the impedance connected between the alternator and the alternating current circuit if the characteristics of the current passing through the impedance are within desired parameters.

16. A connector arrangement according to any preceding claim, wherein the prime mover driving the alternator is a Stirling engine.

17. A connector arrangement according to any preceding claim, wherein the alternator is a linear alternator.

18. A connector arrangement according to any preceding claim, wherein the alternating current circuit is a mains electricity supply.

19. A method of operating a connector arrangement connecting a prime mover driven alternator to an alternating current circuit with an existing alternating current, the method comprising the steps of monitoring a parameter of the prime mover and adjusting the resonant frequency of a circuit of the connector arrangement between a first resonant frequency tuned to an initial operating frequency of the prime mover and a second resonant frequency detuned to the initial operating frequency when the parameter passes through a threshold value.

20. A method of connecting a prime mover driven alternator arranged to generate a current between two terminals to an alternating current circuit with an existing alternating current, the method comprising the steps of:
(a) connecting an impedance of such a value between the terminals of the alternator that the prime mover arranged to drive the alternator substantially cannot move and cannot make the alternator generate a current;
(b) initialising the prime mover so that it is in a suitable condition to drive the alternator at the frequency of the alternating current in the circuit to which it is to be connected; and
(c) connecting the terminals of the alternator to a circuit with an existing alternating current to cause the alternator to start movement of the prime mover; and,

concurrent with steps (b) and (c), monitoring a parameter of the prime mover and adjusting the resonant frequency of a circuit between a first resonant frequency tuned to an initial operating frequency of the prime mover and a second resonant frequency detuned to the initial

operating frequency when the parameter passes through a threshold value.

21. A method according to claim 20, wherein the prime mover is a Stirling engine.

22. A method according to claim 21, in which the Stirling engine is initialised by supplying heat to one end of its piston chamber.

23. A method according to any of claims 20 to 22, in which the terminals of the alternator are connected to the alternating current circuit through an impedance.

24. A method according to claim 23, in which the impedance through which the terminals of the alternator are connected to the alternating current circuit is subsequently short circuited.

25. A method according to any of claims 20 to 24, in which after the terminals of the alternator are connected to the alternating current circuit, the characteristics of the current passing through that connection are checked to determine whether they are within expected parameters.

26. A method according to claim 24 or claim 25, in which the characteristics of the current passing through the short circuit are checked to determine whether they are within expected parameters.

27. A method according to claim 25 or 26, wherein if the characteristic of the current are outside expected

parameters the alternator is disconnected from the alternating current circuit.

28. A method of disconnecting a prime mover driven alternator from an alternating current circuit with an existing alternating current comprising the steps of:

(a) connecting an impedance in parallel with the prime mover driven alternator, the impedance having a sufficiently low impedance value to require a current in excess of that which the alternator is able to deliver to prevent the prime mover from driving the alternator and thus stalling the prime mover; and

(b) disconnecting the alternator from the circuit with an existing alternating current; and,

concurrent with steps (a) and (b), monitoring a parameter of the prime mover and adjusting the resonant frequency of a circuit between a first resonant frequency tuned to an initial operating frequency of the prime mover and a second resonant frequency detuned to the initial operating frequency when the parameter passes through a threshold value.

29. A method according to any of claims 28, wherein the prime mover is a Stirling engine.

30. A method according to claim 29, wherein the Stirling engine has a heater and the heater is turned off and heat in the Stirling engine is used up before the impedance is connected in parallel with the alternator to stall the Stirling engine.

31. A method according to any of claims 19 to 30, wherein the second resonant frequency is tuned to operation of the prime mover at normal working temperature.

32. A method according to any of claims 19 to 31, wherein the prime mover is a Stirling engine.

33. A method according to any of claims 19 to 32, wherein the alternator is a linear alternator.

34. A method of any of claims 19 to 33, wherein the step of monitoring the parameter comprises monitoring a parameter that is related to the operating frequency of the prime mover.

35. The method of any of claims 19 to 34 wherein the step of monitoring the parameter comprises measuring the temperature of the prime mover or the temperature of a coolant of the prime mover.

36. The method of any of claims 19 to 35, wherein the step of monitoring the parameter comprises measuring the time elapsed since the prime mover was started.

37. A method according to any of claims 19 to 36, wherein the step of adjusting the resonant frequency of the adjustable circuit comprises adjusting a capacitance.